

Docket No.: 00155-00388-US  
(PATENT)

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
William E. Fristad et al.

Application No.: 10/623,733

Confirmation No.: 6069

Filed: July 22, 2003

Art Unit: 1755

For: A COATING COMPOSITION

Examiner: A. J. Green

DECLARATION OF WILLIAM E. FRISTAD UNDER 37 CFR 1.132

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

I, William E. Fristad, declare the following:

1. I have been a Technical Director at Henkel Corporation (hereinafter referred to as "Henkel") since 1998. As Technical Director, I am responsible for directing and managing technical projects in the area of metal-surface treatment and Autophoretic<sup>®</sup> chemistry. I have been employed by Henkel since 1985, and obtained a Ph.D. in organic chemistry from the Ohio State University in 1979.

2. I have reviewed the Office Action dated May 2, 2006, and in particular, the rejections of claims 1-17 and 26-40 presented in paragraphs 3-9 of the Office Action. I have also reviewed the following U.S. Patents cited in each of these paragraphs: U.S. Patent Nos. 5,281,282; 5,356,409; 5,427,632; 4,449,415; 5,897,716; 6,464,800; and 6,764,553 (hereinafter collectively referred to as the "Patents"). I am familiar with the Patents as each one lists Henkel Corporation as Assignee. Also, the inventions described in each of the Patents were developed by technical groups at Henkel of which I am presently one of two Technical Directors.

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3. Following my review of the Office Action and the Patents, it is my understanding that the Examiner's rejections are based on his contention that the particles present in the coating compositions described in the Patents could be considered acid-stable particles as that term is used in the instant application. In response to the rejections and the Examiner's position, experiments were conducted, in Henkel laboratories at my direction, to evaluate the following particle dispersions for their acid-stability: Cab-o-Sil® amorphous fumed silica, Cab-o-Sil® M5 and Aerosil® R-972; as described in the Patents. These are the particle dispersions that are used to prepare the coating compositions in the Patents. The experiments were carried out according to the procedure described at pages 14 and 15 of the Specification of the instant application.

4. According to the acid-stable test procedure described on pages 14 and 15 of the application, a dispersion of Cab-o-Sil® amorphous fumed (pyrogenic) silica was added with stirring to an acetate buffer. The resulting suspension was retained in a glass beaker at room temperature for at least 96 hours, or at least until the suspension had turned to a viscous gel. Attached to this Declaration is a photograph of the resulting gel that formed from the addition of the Cab-o-Sil® amorphous silica to the acetate buffer. The suspension underwent a significant viscosity change. As shown, the Cab-o-Sil® amorphous silica is not composed of acid-stable particles as that term is used in the instant application.

5. According to the acid-stable test procedure described on pages 14 and 15 of the application, a dispersion of Cab-o-Sil® M5 silica was added with stirring to an acetate buffer. The resulting suspension was retained in a glass beaker at room temperature for at least 96 hours, or at least until the suspension had turned to a viscous gel. Attached to this Declaration is a photograph of the resulting gel that formed from the addition of the Cab-o-Sil® M5 silica to the acetate buffer. The suspension underwent a significant viscosity change. As shown, the Cab-o-Sil® M5 silica is not composed of acid-stable particles as that term is used in the instant application.

6. According to the acid-stable test procedure described on pages 14 and 15 of the application, a dispersion of Aerosil® R-972 silica was added with stirring to an acetate buffer.

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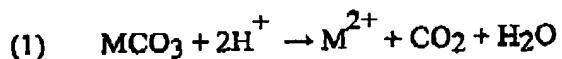
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The resulting suspension was retained in a glass beaker at room temperature for at least 96 hours, or at least until the suspension had turned to a viscous gel. Attached to this Declaration is a photograph of the resulting gel that formed from the addition of the Aerosil® R-972 silica to the acetate buffer. The suspension underwent a significant viscosity change. As shown, the Aerosil® R-972 silica is not composed of acid-stable particles as that term is used in the instant application.

7. To further explain these experimental results, it can be understood that acid-stable particles are those which exhibit no apparent visual change or significant viscosity change over the recited time period in the presence of the acidic buffer solution described on pages 14 and 15 of the instant application. For example, in the case of the testing of Cab-o-Sil® amorphous fumed silica described in ¶4 above, the viscosity change was very significant and obvious.

8. According to the acid-stable test procedure described on pages 14 and 15 of the application, a dispersion of Ludox® TMA silica was added with stirring to an acetate buffer. The resulting suspension was retained in a glass beaker at room temperature for at least 96 hours. Attached to this Declaration is a photograph of the colloidal suspension that remained after the Ludox® TMA silica/acetate buffer suspension sat at room temperature for at least 96 hours. The suspension according to an embodiment of the present invention did *not* undergo a visibly noticeable or measurable (as described) viscosity change. As shown, the Ludox® TMA silica is composed of acid-stable particles as that term is used in the instant application.

9. The Patents list other metal compounds that can be or are added to the described coating compositions. It is my understanding that the Examiner also believes that these metal compounds can be considered acid-stable particles. These metal compounds include a list of metal carbonates such as magnesium, manganese, zinc or zirconium carbonate. Under the acidic conditions of the aqueous systems described in the Patents, the metal carbonates react with the acid present according to formula (1).



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The addition of metal carbonates to the coating compositions provides a route for the addition of transition metal cations to the compositions. However, upon reaction with the acid present, the transition metal cations are solvated and exist as dissolved, hydrated metal cations in the acidic aqueous system. Metal carbonate particles are not acid-stable because they dissolve and no longer exist as the originally added particles. In other words, the metal carbonate particles undergo a noticeable change. Accordingly, metal carbonates are not composed of acid-stable particles as that term is used in the application.

10. U.S. Patent 5,897,716 ("the '716 Patent") describes a coating composition referred to as "concentrate 1". Concentrate 1 contains 0.27% by weight Cab-o-Sil<sup>®</sup> M5 silica. The '716 Patent also describes the preparation of a "concentrate 2" that is added to concentrate 1 to form a second coating composition. Concentrate 2 contains 0.1% by weight of a polymer solution with a solids content of 32-33%. The term "solids content" refers to the concentration of polymer in the aqueous polymer solution, and not to the presence of organic particles. Accordingly, the addition of the polymer solution in concentrate 2 does not provide acid-stable particles as that term is used in the application.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.



William E. Fristad

9-29-06

Date

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Cab-o-sil semi-permanent bonds to metal

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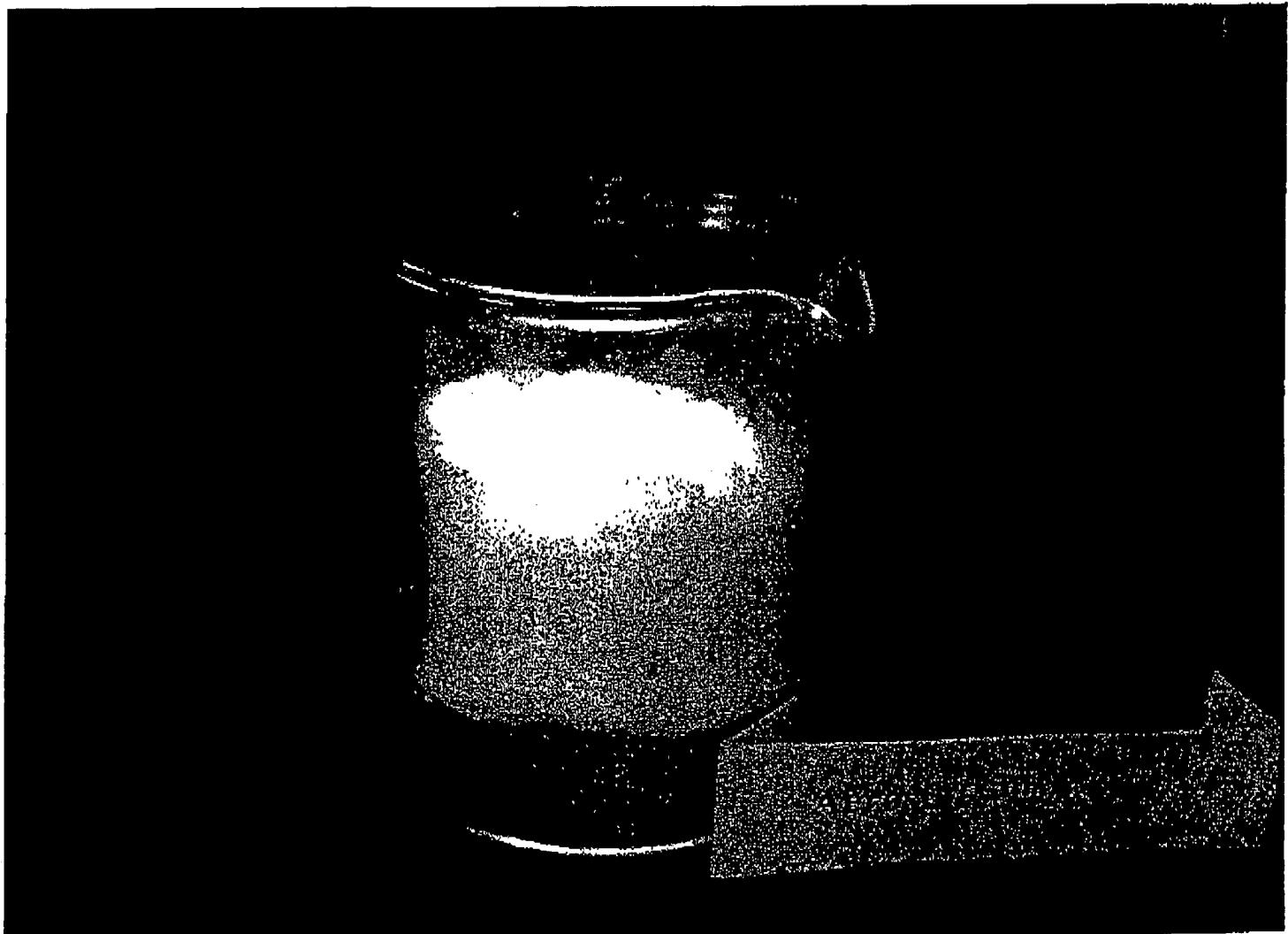


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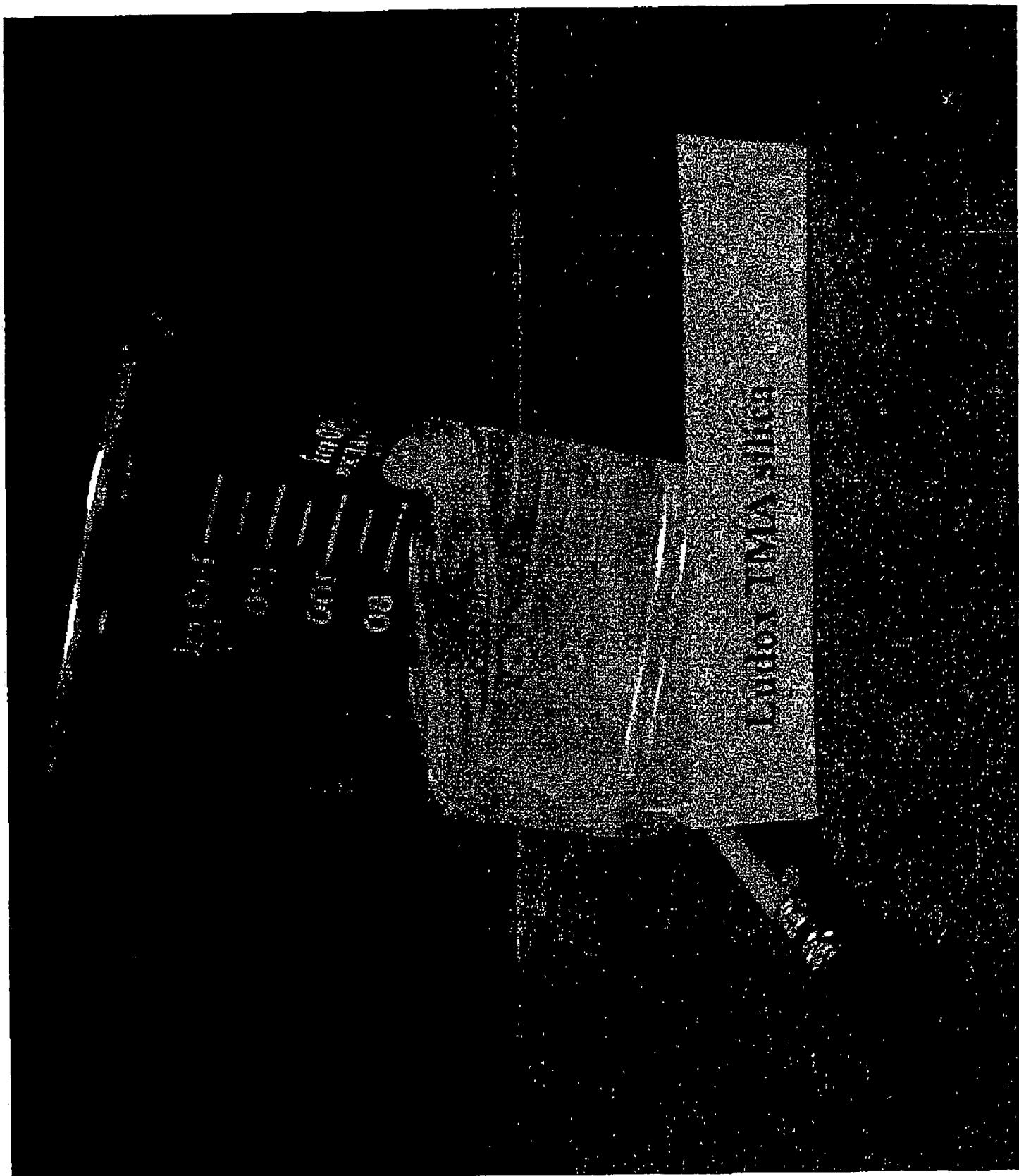


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